

IN THE CLAIMS

Please amend the claims as follows:

1. (original) A radio receiver, comprising:

- a pulse generator, for generating pulses based on an expected received signal;
- a multiplier, for multiplying a received signal by the generated pulses; and
- a circuit for receiving the multiplier output, wherein said circuit is operable in a first mode to act as a low-pass filter, and wherein said circuit is operable in a second mode to act as an integrator.

2. (original) A receiver as claimed in claim 1, comprising an analog-to-digital converter, for receiving an output from said circuit.

3. (original) A receiver as claimed in claim 1, wherein said circuit includes an analog-to-digital converter.

4. (original) A receiver as claimed in claim 3, wherein said circuit comprises a sigma-delta analog-to-digital converter having a feedback loop, and an integrator, wherein, in said first mode,

said integrator is included in said feedback loop of said sigma-delta analog-to-digital converter, and, in said second mode, the output of the multiplier is connected to the integrator, and the integrator output is connected to the sigma-delta analog-to-digital converter.

5. (currently amended) A receiver as claimed in ~~any preceding claim~~claim 1, comprising means for detecting when the receiver has synchronized to a received pulse sequence, and for controlling said receiver to operate in said first mode before it has synchronized to a received pulse sequence, and to operate in the second mode when it has synchronized to a received pulse sequence.

6. (original) A method of operating a radio receiver, comprising:

- multiplying a received signal by a sequence of generated pulses;
- in a first mode, applying a multiplication output to a low-pass filter, and
- in a second mode, applying the multiplier output to an integrator.

7. (original) A method as claimed in claim 6, further comprising:

- detecting when the receiver has synchronized to a received

pulse sequence;

- operating the receiver in said first mode before it has synchronized to a received pulse sequence, and
- operating the receiver in the second mode when it has synchronized to a received pulse sequence.

8. (currently amended) A method as claimed in claim 6 or 7,  
comprising generating said sequence of pulses in a form  
corresponding to pulses in an expected received signal.

9. (currently amended) A method as claimed in ~~one of claims 6 to 8~~  
claim 6, for receiving an Ultra Wideband radio signal.

10. (original) A wireless communications system, comprising:

- a radio transmitter, for generating and transmitting a radio signal; and
- a radio receiver, wherein the radio receiver comprises:
  - a pulse generator, for generating pulses based on an expected received signal;
  - a multiplier, for multiplying a received signal by the generated pulses; and
  - a circuit for receiving the multiplier output, wherein said circuit is operable in a first mode to act as a low-pass filter,

and wherein said circuit is operable in a second mode to act as an integrator.

11. (original) A wireless communications system as claimed in claim 10, wherein said receiver further comprises an analog-to-digital converter, for receiving an output from said circuit.

12. (original) A wireless communications system as claimed in claim 10, wherein said circuit includes an analog-to-digital converter.

13. (original) A wireless communications system as claimed in claim 12, wherein said circuit comprises a sigma-delta analog-to-digital converter having a feedback loop, and an integrator, wherein, in said first mode, said integrator is included in said feedback loop of said sigma-delta analog-to-digital converter, and, in said second mode, the output of the multiplier is connected to the integrator, and the integrator output is connected to the sigma-delta analog-to-digital converter.

14. (original) A wireless communications system as claimed in claim 10, wherein said receiver further comprises means for detecting when the receiver has synchronized to a received pulse

sequence, and for controlling said receiver to operate in said first mode before it has synchronized to a received pulse sequence, and to operate in the second mode when it has synchronized to a received pulse sequence.